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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,226	08/22/2003	Izaya Okae	112857-424	1391
29175 7590 08/31/2009				
K&L Gates LLP				
P. O. BOX 1135				
CHICAGO, IL 60690				
EXAMINER				
ECHELMMEYER, ALIX ELIZABETH				
ART UNIT		PAPER NUMBER		
1795				
NOTIFICATION DATE		DELIVERY MODE		
08/31/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

chicago.patents@klgates.com

Office Action Summary

Application No.

10/646,226

Applicant(s)

OKAE ET AL.

Examiner

Alix Elizabeth Echelmeyer

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-10, 12-14 and 16-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-10, 12-14 and 16-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to the amendment filed June 15, 2009. The pending claims, 6-10, 12-14, and 16-23, have been amended to reflect the deficiencies from the Notice of Non-Compliance mailed May 15, 2009. Claims 6-10, 12-14, and 16-23 are pending and are rejected for the reasons given below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaura (JP 2002-075368) in view of Abe (US 6,258,483) and as evidenced by Chaloner-Gill et al. (US 2002/0192137).

Yamaura teaches a positive electrode active material for a nonaqueous electrolyte cell wherein the particles of active material are of the formula $\text{LiNi}_{1-x}\text{M}_x\text{O}_2$ wherein M is one of Al, Co, and B, and the surfaces of the particles are covered by particles of the general formula LiFePO_4 (abstract, [0001]).

In paragraph [0037] of the instant disclosure, applicants name LiFePO_4 as a preferable positive active material but fail to state explicitly that LiFePO_4 is of the olivine structure.

Chaloner-Gill teaches that crystalline lithium iron phosphate has an olivine structure ([0126]).

Yamaura fail to teach the claimed weight percent of LiFeO_4 to lithium nickelate substrate.

Abe teaches a battery having a positive active material having one material coated on another (column 6 lines 2-5). Abe further teaches that the right amount of coating should be determined, since if there is too much or too little the active material will not have the desired properties of both materials.

One of ordinary skill in the art could have applied the improvement of Abe of determining the best ratio coating to base particle to the ratio of nickelate to LiFeO_4 in Yamaura and the results would have been predictable.

4. Claims 6-9, 12, 13, are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaura in view of Abe and Kurose et al. (WO00/02280, with US6,824,924 used as an English translation, since it is the 371 of the foreign application) and as evidenced by Chaloner-Gill et al.

As for claims 6, 12, 16 and 19, Yamaura teaches a positive electrode active material for a nonaqueous electrolyte cell wherein the particles of active material are of the formula $\text{LiNi}_{1-x}\text{M}_x\text{O}_2$ and the surfaces of the particles are covered by particles of the general formula LiFePO_4 (abstract, [0001]).

In paragraph [0037] of the instant disclosure, applicants name LiFePO_4 as a preferable positive active material but fail to state explicitly that LiFePO_4 is of the olivine structure.

Chaloner-Gill teaches that crystalline lithium iron phosphate has an olivine structure ([0126]).

Regarding claims 7, 8, 17, 18, 20 and 21, the $\text{LiNi}_{1-x}\text{M}_x\text{O}_2$ particles are $11.458\text{ }\mu\text{m}$ on average and the LiFePO_4 particles are $0.185\text{ }\mu\text{m}$ on average ([0054]).

With further regard to claims 6, 12, 16 and 19, Yamaura fail to teach the claimed weight percent of LiFePO_4 to lithium nickelate substrate.

Abe teaches a battery having a positive active material having one material coated on another (column 6 lines 2-5). Abe further teaches that the right amount of coating should be determined, since if there is too much or too little the active material will not have the desired properties of both materials.

One of ordinary skill in the art could have applied the improvement of Abe of determining the best ratio coating to base particle to the ratio of nickelate to LiFeO_4 in Yamaura and the results would have been predictable.

With further regard to claims 8, 18 and 21, when the desired ratio of LiFePO_4 particles to nickelate is determined as discussed above, the claimed coating thickness would result since the thickness is determined by the amount of coating material.

Yamaura fails to teach the lithium nickelate compound of instant claims 6, 9, 12, 13, 16 and 19.

Kurose et al. teach LiNiO_2 as a positive electrode active material (column 2 lines 56-58). Kurose et al. further teach that the use of LiNiO_2 as a positive electrode active material leads to a reduction in size and weight in the battery, increasing energy density.

It would be desirable to use LiNiO_2 as a positive electrode active material in the battery of Yamaura such as taught by Kurose et al. since it would lead to a reduction in size and weight in the battery, increasing energy density.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to look to the teachings of Kurose et al. suggesting the use of LiNiO_2 as a positive electrode active material in the battery of Yamaura, since such a substitution of LiNiO_2 for the lithium nickel oxide of Yamaura would result in the reduction of size and weight of the battery, leading to an increase in energy density.

5. Claims 10 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaura et al. in view of Kurose et al. as applied to claims 6 and 12 above, and further in view of Goodenough et al. (US 6,391,493).

Yamaura et al. in view of Kurose et al. fail to teach that the olivine compound of the positive active material is LiMnPO_4 .

Goodenough et al. teach that that a preferred olivine electrode compound is LiMnPO_4 (column 2 lines 22-24), since it has a larger free volume for lithium-ion motion, which leads to higher lithium-ion conductivity and higher power density, as well as making an inexpensive and nonpolluting battery (column 1 lines 51-57).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to look to the teachings of Goodenough et al. suggesting the use of LiMnPO_4 as a positive electrode active material in the battery of Yamaura in view of Kurose et al., since such a substitution of LiMnPO_4 for the LiFePO_4 of Yamaura is obvious over the teachings of Goodenough et al.

Response to Arguments

6. Applicant's arguments, see Remarks, filed June 15, 2009, with respect to the rejections of the limitations regarding the weight percent of the olivine compound in claims 6 and 12 under Yamaura have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made, see above.

Applicant argues, on page 9 of the remarks, that the combination of Yamaura and Kurose et al. is based on hindsight reasoning. The examiner holds that the skilled artisan would be capable of using different known active materials having very similar

makeup in a battery without the use of hindsight reasoning. It must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is (571)272-1101. The examiner can normally be reached on Mon-Fri 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795

Alix Elizabeth Echelmeyer
Examiner
Art Unit 1795

aee